Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:
$$ax^2 + bx + c = 0$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side.

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The [▸ Quadratic Formula] says r_1 and r_2 are [▸ the roots] of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formulais only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = 3x^2 + 2x - 18 - (3x^2 + 2x - 18)$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18 - (3x^2 + 2x - 18)}$$
$$= 0$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side.
We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18} - (3x^2 + 2x - 18)$$

$$-2x^2 - 4x + 30 = 0$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18 - (3x^2 + 2x - 18)}$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = 3x^2 + 2x - 18 - (3x^2 + 2x - 18)$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = 3x^2 + 2x - 18 - (3x^2 + 2x - 18)$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formulais only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18} - (3x^2 + 2x - 18)$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

$$r_{1,2} = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \cdot (-2) \cdot 30}}{2 \cdot (-2)}$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸Quadratic Formula says r_1 and r_2 are ▸the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formulais only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18} - \cancel{(3x^2 + 2x - 18)}$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

$$r_{1,2} = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \cdot (-2) \cdot 30}}{2 \cdot (-2)}$$

$$= \frac{4 \pm \sqrt{16 + 240}}{-4}$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The (▸ Quadratic Formula) says r_1 and r_2 are (▸ the roots) of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side.
We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18} - \cancel{(3x^2 + 2x - 18)}$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

$$r_{1,2} = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \cdot (-2) \cdot 30}}{2 \cdot (-2)}$$

$$= \frac{4 \pm \sqrt{16 + 240}}{-4}$$

$$= \frac{4 \pm \sqrt{256}}{-4}$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formulais only used if we have 0 on one side.

We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18} - (3x^2 + 2x - 18)$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

$$r_{1,2} = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \cdot (-2) \cdot 30}}{2 \cdot (-2)}$$

$$= \frac{4 \pm \sqrt{16 + 240}}{-4}$$

$$= \frac{4 \pm \sqrt{256}}{-4}$$

$$= \frac{4 \pm 16}{-4}$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formulais only used if we have 0 on one side.
We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18} - (3x^2 + 2x - 18)$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

$$r_{1,2} = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \cdot (-2) \cdot 30}}{2 \cdot (-2)}$$

$$= \frac{4 \pm \sqrt{16 + 240}}{-4}$$

$$= \frac{4 \pm \sqrt{256}}{-4}$$

$$= \frac{4 \pm 16}{-4}$$

$$= \frac{20}{-4} \text{ and } \frac{-12}{-4}$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:

$$ax^2 + bx + c = 0$$

Notice that the Quadratic Formula is only used if we have 0 on one side. We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:

$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18} - (3x^2 + 2x - 18)$$

$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

$$r_{1,2} = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \cdot (-2) \cdot 30}}{2 \cdot (-2)}$$

$$= \frac{4 \pm \sqrt{16 + 240}}{-4}$$

$$= \frac{4 \pm \sqrt{256}}{-4}$$

$$= \frac{4 \pm 16}{-4}$$

$$= \frac{20}{-4} \text{ and } \frac{-12}{-4} = -5 \text{ and } 3$$

Solve the equation: $x^2 - 2x + 12 = 3x^2 + 2x - 18$:

Recall: The ▸ Quadratic Formula says r_1 and r_2 are ▸ the roots of:
$$ax^2 + bx + c = 0$$
Notice that the Quadratic Formula is only used if we have 0 on one side.
We can get 0 on the right hand side if we Subtract $3x^2 + 2x - 18$:
$$x^2 - 2x + 12 - (3x^2 + 2x - 18) = \cancel{3x^2 + 2x - 18} - \cancel{(3x^2 + 2x - 18)}$$
$$-2x^2 - 4x + 30 = 0$$

$$r_{1,2} = \frac{-(b) \pm \sqrt{(b)^2 - 4ac}}{2a}$$

$$r_{1,2} = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \cdot (-2) \cdot 30}}{2 \cdot (-2)}$$

$$= \frac{4 \pm \sqrt{16 + 240}}{-4}$$

$$= \frac{4 \pm \sqrt{256}}{-4}$$

$$= \frac{4 \pm 16}{-4}$$

$$= \frac{20}{-4} \text{ and } \frac{-12}{-4} = -5 \text{ and } 3$$

The solutions to $-2x^2 - 4x + 30 = 0$ are: $x = r_{1,2} = -5, 3$